

**CLAIMS:**

5 What is claimed is:

1. A method of dynamically re-partitioning a partitioned  
computer system in response to workloads, each  
partition of the partitioned computer system having a  
10 plurality of resources, the method comprising the steps  
of:

determining whether a workload on a resource in a  
partition exceeds a maximum threshold; and

15 automatically allocating a similar resource to the  
partition if it is determined that the workload exceeds  
the maximum threshold.

20 2. The method of Claim 1 wherein the similar resource is a  
resource that has not been allocated to any partition.

25 3. The method of Claim 2 wherein the similar resource is  
de-allocated from the partition after the workload has  
decreased to a minimum threshold.

30 4. The method of Claim 1 wherein the similar resource is  
one of a plurality of similar resources that are  
allocated to another partition having a workload within  
a particular threshold.

5. The method of Claim 4 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.

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6. A method of dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources, the method comprising the steps of:

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creating a workload profile for each partition, the profile having a workload and a workload time schedule; and

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automatically allocating additional resources to a partition before the workload is to occur if the workload on the resources originally assigned to the partition is to exceed a maximum threshold.

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7. The method of Claim 6 wherein one of the resources is a processor.

8. The method of Claim 7 wherein another one of the resources is memory space.

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9. The method of Claim 8 wherein a further of the resources is an I/O slot.

10. The method of Claim 9 wherein the additional resources are not assigned to any partition.

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11. The method of Claim 10 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.

5 12. The method of Claim 9 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.

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13. The method of Claim 12 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.

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14. A computer program product on a computer readable medium for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources, the computer program product comprising:

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code means for determining whether a workload on a resource in a partition exceeds a maximum threshold; and

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code means for automatically allocating a similar resource to the partition if it is determined that the workload exceeds the maximum threshold.

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15. The computer program product of Claim 14 wherein the similar resource is a resource that has not been allocated to any partition.
- 5 16. The computer program product of Claim 15 wherein the similar resource is de-allocated from the partition after the workload has decreased to a minimum threshold.
- 10 17. The computer program product of Claim 14 wherein the similar resource is one of a plurality of similar resources that are allocated to another partition having a workload within a particular threshold.
- 15 18. The computer program product of Claim 17 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.
- 20 19. A computer program product on a computer readable medium for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources, the computer program product comprising:
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- code means for creating a workload profile for each partition, the profile having a workload and a workload time schedule; and
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- code means for automatically allocating additional resources to a partition before the workload is to

occur if the workload on the resources originally assigned to the partition is to exceed a maximum threshold.

- 5    20.    The computer program product of Claim 19 wherein one of the resources is a processor.
21.    The computer program product of Claim 20 wherein another one of the resources is memory space.
- 10    22.    The computer program product of Claim 21 wherein a further of the resources is an I/O slot.
23.    The computer program product of Claim 22 wherein the additional resources are not assigned to any partition.
- 15    24.    The computer program product of Claim 23 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.
- 20    25.    The computer program product of Claim 22 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.
- 25    26.    The computer program product of Claim 25 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.
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27. An apparatus for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources, the apparatus comprising:

means for determining whether a workload on a resource in a partition exceeds a maximum threshold; and

means for automatically allocating a similar resource to the partition if it is determined that the workload exceeds the maximum threshold.

28. The apparatus of Claim 27 wherein the similar resource is a resource that has not been allocated to any partition.

29. The apparatus of Claim 28 wherein the similar resource is de-allocated from the partition after the workload has decreased to a minimum threshold.

30. The apparatus of Claim 27 wherein the similar resource is one of a plurality of similar resources that are allocated to another partition having a workload within a particular threshold.

31. The apparatus of Claim 30 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.

5 32. An apparatus for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources, the apparatus comprising:

means for creating a workload profile for each partition, the profile having a workload and a workload time schedule; and

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means for automatically allocating additional resources to a partition before the workload is to occur if the workload on the resources originally assigned to the partition is to exceed a maximum threshold.

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33. The apparatus of Claim 32 wherein one of the resources is a processor.

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34. The apparatus of Claim 33 wherein another one of the resources is memory space.

35. The apparatus of Claim 34 wherein a further of the resources is an I/O slot.

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36. The apparatus of Claim 35 wherein the additional resources are not assigned to any partition.

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37. The apparatus of Claim 36 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.

38. The apparatus of Claim 35 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.

39. The apparatus of Claim 38 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.

40. A computer system that is partitioned and having code data for dynamically re-partitioning itself in response to workloads, each partition of the partitioned computer system having a plurality of resources, the computer system comprising:

at least one storage device for storing the code data; and

at least one processor for processing the code data to determine whether a workload on a resource in a partition exceeds a maximum threshold, and to automatically allocate a similar resource to the partition if it is determined that the workload exceeds the maximum threshold.

41. The computer system of Claim 40 wherein the similar resource is a resource that has not been allocated to any partition.



42. The computer system of Claim 41 wherein the similar resource is de-allocated from the partition after the workload has decreased to a minimum threshold.

5 43. The computer system of Claim 40 wherein the similar resource is one of a plurality of similar resources that are allocated to another partition having a workload within a particular threshold.

10 44. The computer system of Claim 43 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.

15 45. A computer system that is partitioned into a plurality of partitions, the computer system having code data for dynamically re-partitioning itself in response to workloads, each partition of the partitioned computer system having a plurality of resources, the computer  
20 system comprising:

at least one storage device for storing the code data;  
and

25 at least one processor for processing the code data to create a workload profile for each partition, the profile having a workload and a workload time schedule and to automatically allocate additional resources to a partition before the workload is to occur if the  
30 workload on the resources originally assigned to the partition is to exceed a maximum threshold.

46. The computer system of Claim 45 wherein one of the resources is a processor.

5 47. The computer system of Claim 46 wherein another one of the resources is memory space.

48. The computer system of Claim 47 wherein a further of the resources is an I/O slot.

10 49. The computer system of Claim 48 wherein the additional resources are not assigned to any partition.

15 50. The computer system of Claim 49 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.

20 51. The computer system of Claim 48 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.

25 52. The computer system of Claim 51 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.

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